2016 Virginia Pipeline Safety Conference

Pipeline Safety Management System ("PSMS") - Progress

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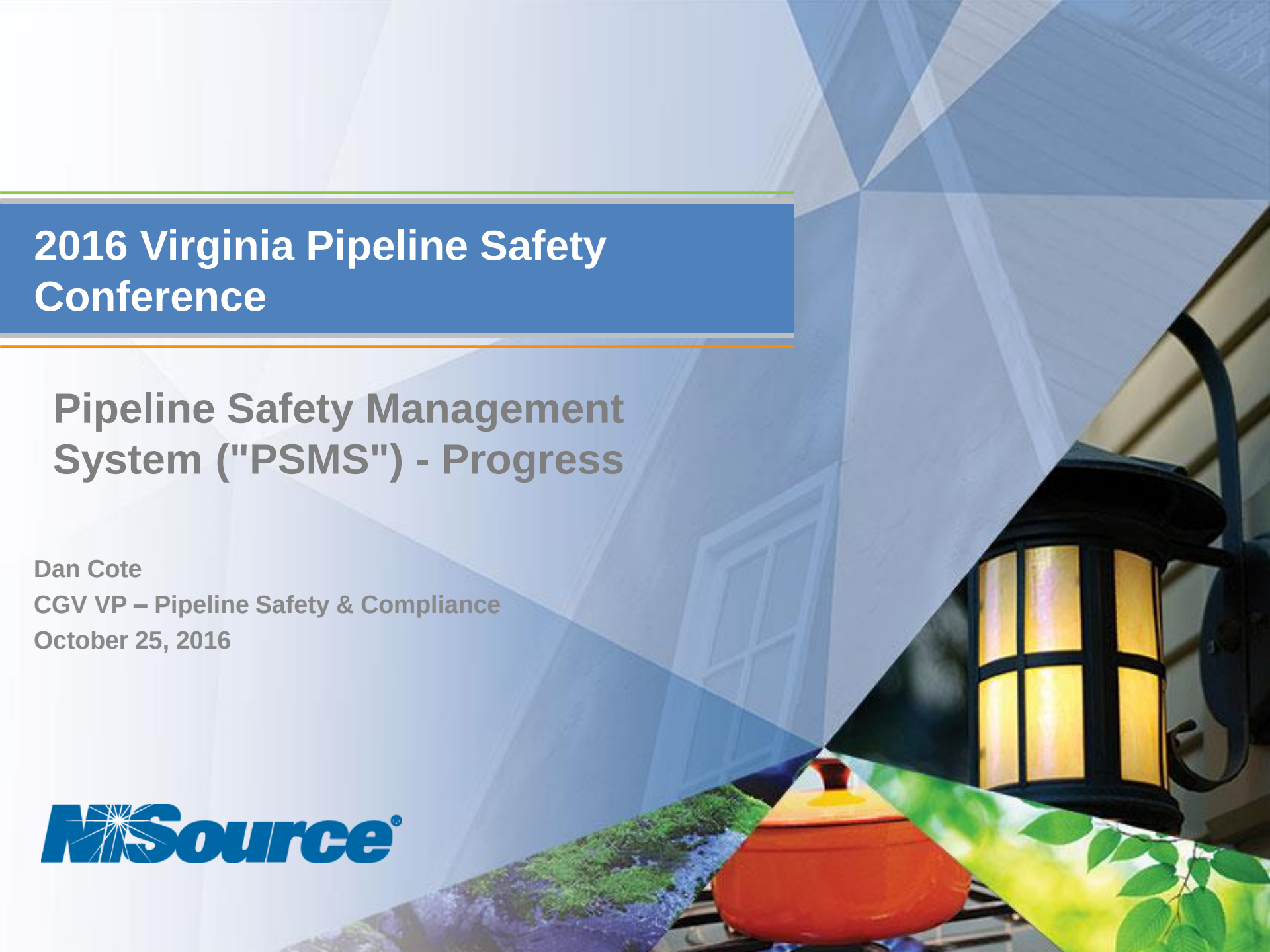
October 25, 2016

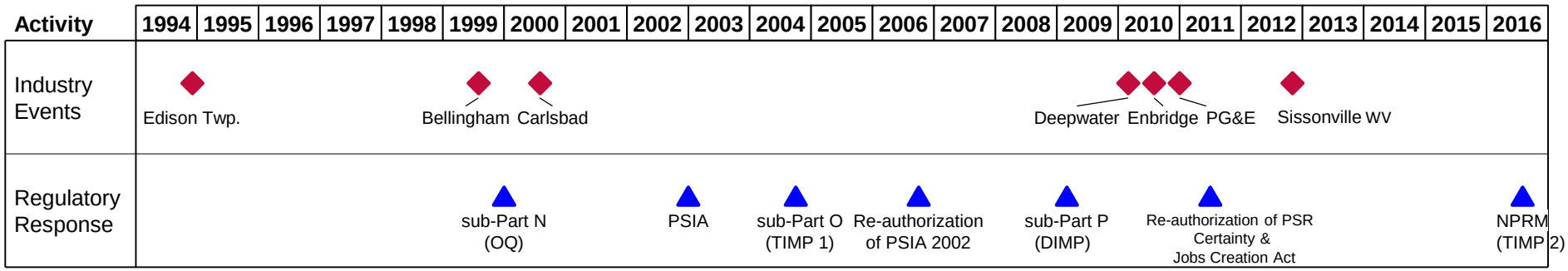


Major Discussion Items

One Operator's Perspective

- **1994 to today – How PHMSA (and the industry) got to this point.**
- **A three pronged approach to taking Pipeline Safety to the next level.**
  - A clear Pipeline Safety Strategy with rigorous attention on risks
  - Develop a Safety Management System for managing Pipeline Safety process
  - A continuing focus on culture
- **What CGV is doing in these areas today.**
- **The Conclusion**

Pipeline Industry Events and Regulatory Response



Industry Events

Edison Twp., NJ	36”, 970 psi NG pipeline fail. 1 fatality
Bellingham, WA	16" HL pipeline rupture, 3 fatalities
Carlsbad, NM	30" 675 psi NG pipeline fail, 12 fatalities
Deepwater Horizon	Gulf of Mexico
Enbridge	Marshall, MI, HL pipeline rupture, Environment
PG&E	30 NG Pipeline, 450 psi, San Bruno, CA, 8 fatalities
Columbia Pipeline	20” NG Pipeline, 1,000 psi, Sissonville, WV, Property loss

Part 192 Regulatory Expansion

1999	sub-Part N Operator Qualifications rules promulgated in Part 192
2002	Pipeline Safety Improvement Act of 2002 signed into Federal Law
2004	sub-Part O Gas Transmission Pipeline Integrity Management promulgated in Part 192
2006	Pipeline Inspection, Protection, Enforcement and Safety Act (re-authorization of PSIA 2002)
2009	sub-Part P Gas Distribution Pipeline Integrity Management promulgate in Part 192
2011	Pipeline Safety, Regulatory Certainty and Jobs Creation Act (re-authorization)
2016	NPRM for Gas Transmission and Gas Gathering Pipelines

Significant Industry Events routinely produce more regulations that impact us all without regard to which Operators already have an effective program. (and which might not….)

The Headlines

MSource

The Public/Political Context to these Incidents

- **The new Integrity Management Notice of Proposed Rulemaking (NOPR) is just the latest in a series of rules following incidents. The NOPR has been under development by PHMSA for over 3 years, while AGA, INGAA, NAPSR and other groups continuously commented (and lobbied) throughout the drafting process.**

- **Congress had repeatedly criticized PHMSA for being slow to enact the rules required by the Pipeline Safety Act of 2011.**

- **Congress, the media ("The Little Department That Couldn't"), consumer advocacy and environmental groups have all accused PHMSA of being "in the pocket" of the industry.**

- **In May, 2016 Jeff Weise, the Associate Administrator for Pipeline Safety at PHMSA resigned. Jeff was the senior "non-political appointee" pipeline safety technical professional at PHMSA.**

- **Earlier this year AGA announced that it will take PHMSA to court if the final rule is enacted as it stands.**

- **During one of the June PHMSA NPRM workshops, the Department indicated that it intends to publish the final rule by 2016 Year End. In the face of industry concerns, it now appears that final rule may be pushed back by as much as a year.**

The Question Is, Where Do We Go From Here?

A New Direction for the Industry Based On 3 Principals

- **Develop a clear Pipeline Safety Strategy with rigorous attention to effective risk identification & risk remediation**
  - **Define "risks" as explosions/reportable incidents (and the events that cause them) first.**
  - **Let statistical data (Company, regional, and national) and algorisms drive prioritization, not SMEs and anecdote.**
  - **Align remedial actions with most significant risks.**
  - **Update risk model and refresh with new risk and performance data regularly. Also, keep an eye on PHMSA incident reports and advisory bulletins.**

"Sometimes to change things, you have to change things." (Old Maine Proverb)

The Question Is, Where Do We Go From Here?

A New Direction for the Industry Based On 3 Principals (Cont.)

- **Adopt the Safety Management System model as the framework for driving enhanced Pipeline Safety across the Industry**
  - A rigorous, structured and documented process that systemically identifies roles, accountabilities and procedures in executing Pipeline Safety processes and decisions,
  - Ten elements established by RP-1173
    - Leadership & Management Commitment
    - Stakeholder Engagement
    - Risk Management
    - Operational Controls
    - Incident Investigation, Evaluation and Lessons Learned
    - Safety Assurance
    - Management Review and Continuous Improvement
    - Emergency Preparedness and Response
    - Competence, Awareness and Training
    - Documentation and Record Keeping
  - With this program, Pipeline Safety will no longer be dependent on needing just "*the right person*" for the job, because there will be a written plan and structure in place to perpetuate the key principals and practices of effective Pipeline Safety execution.

The Question Is, Where Do We Go From Here?

A New Direction for the Industry Based On 3 Principals (Cont.)

- **Build an Operational Culture that promotes/demands safe, compliant execution every time, and employees will understand fully that those expectations are the standard.**

- **Start with a Culture Survey ("It is hard to get to your destination when you don't know where you are…")**
  - Opens lines of communication with employees. A critical first step in understanding/changing culture.
  - This will allow benchmarking internally, and with peers in the industry.
  - Identifies strengths and opportunities for improvement.
  - Provides insights into next steps.

- **Winning the Hearts and Minds of employees and contractors – A never ending journey that is essential to taking Pipeline Safety to the next level.**

CGV – Where We Are In Building Our SMS And Culture

Three Significant Steps So Far

- **Full buy-in for adopting SMS in all of the NiSource Business Units from "top-of-the-house" NiSource, and the CGV State Leadership. (An essential precursor to all other steps.)**

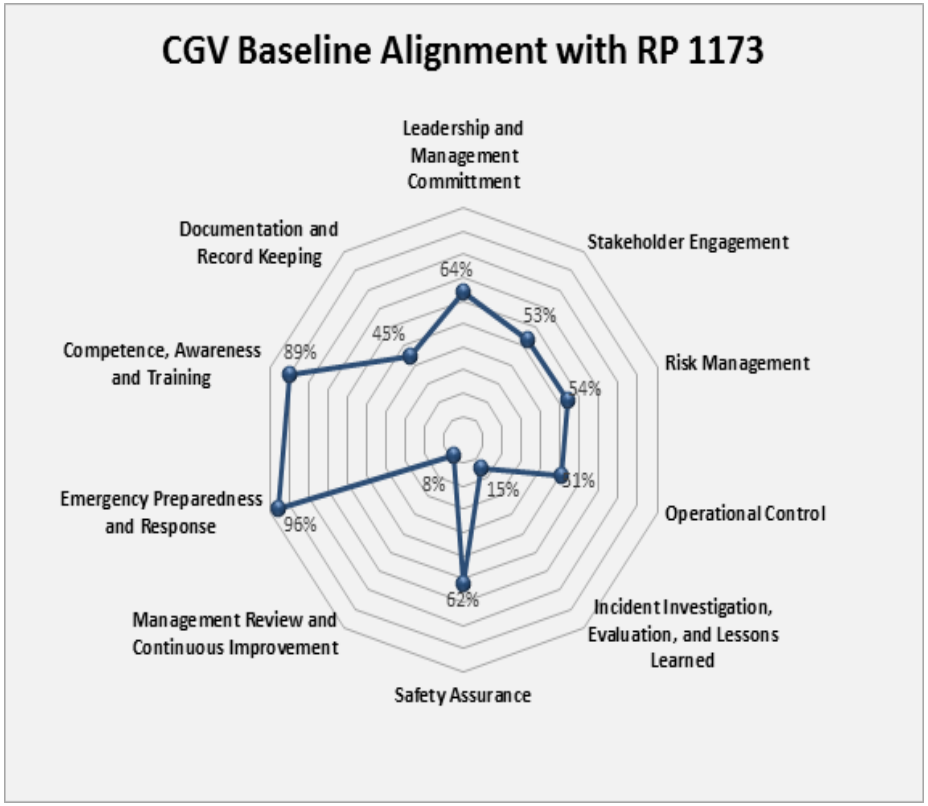
- **Commissioned a third party Engineering company to undertake a comprehensive gap analysis of CGVs processes and procedures against a mature, fully deployed SMS. (Survey results pages to follow.)**

- **Utilized the National Safety Council to conduct a Culture Survey of all CGV employees. Created 12 "Gas Industry Specific" questions to supplement the NSC industry standard questions. (Survey results pages to follow.)**

CGV - SMS Survey Results

- **Overall, the baseline gap analysis determined that current CGV practices and procedures were 56% aligned with RP 1173. (100% would constitute perfect alignment.)**

- **Gaps were identified in all RP 1173 essential elements. The following are representative themes identified during the course of the review:**
  - **Roles/Responsibilities** – Roles and responsibilities are not consistently documented.
  - **Data Management** – Data systems, such as GIS, are not consistently being populated with available data to comprehensively support risk management, risk-based decision making and ongoing operational needs.
  - **Management of Change** – Change management processes are not integrated across all pipeline safety functions.
  - **Near-Misses** – Pipeline safety related near miss events are not consistently identified, documented and followed up on.
  - **Lessons Learned** – Lessons learned from pipeline safety related events are not consistently identified, documented and shared across the organization.



CGV - SMS Survey Results

- **An example of good alignment**
  - "While the Emergency Manual mandated by Part 192 showed strong alignment RP 1173, other aspects of emergency preparedness within the organization exhibited areas for further alignment, primarily related to having a documented process for drills, as well as a formal documented process for lessons-learned. Formal, documented processes for mock drills and lessons-learned help personnel to be prepared for a wide range of emergency scenarios, which also contributes to an enhanced safety culture."

Emergency Preparedness and Response		
Topic Alignment	# of RP 1173 # of Inputs	Recommendations in Alignment
43	**45**	**96%**

- **An Example of "not so good" alignment**
  - This Essential Element has several recommendations specific to management reviews of the PSMS. Implementation of a PSMS and formal process for management review will address these recommendations.
  - CGV does not have a formal process for evaluating new technology that could enhance pipeline safety. Such as process reinforces the importance of pipeline safety, an organization's commitment to a positive pipeline safety culture, as well as promotes a culture of continuous improvement.

Management Review and Continuous Improvement		
Topic	# of RP 1173 # of Inputs	Recommendations in Alignment Alignment
1	**12**	**8%**

- **Next Steps - Analyze report carefully, then:**
  - Prioritize by Activity/Performance
  - Create an element by element remediation action plan and timeline, review with internal and external stakeholders
  - Implement Plan,
  - Track progress over time, adjust plan as necessary

CGV Culture Survey Results

FIGURE 2
Percentile Scores by Program Category

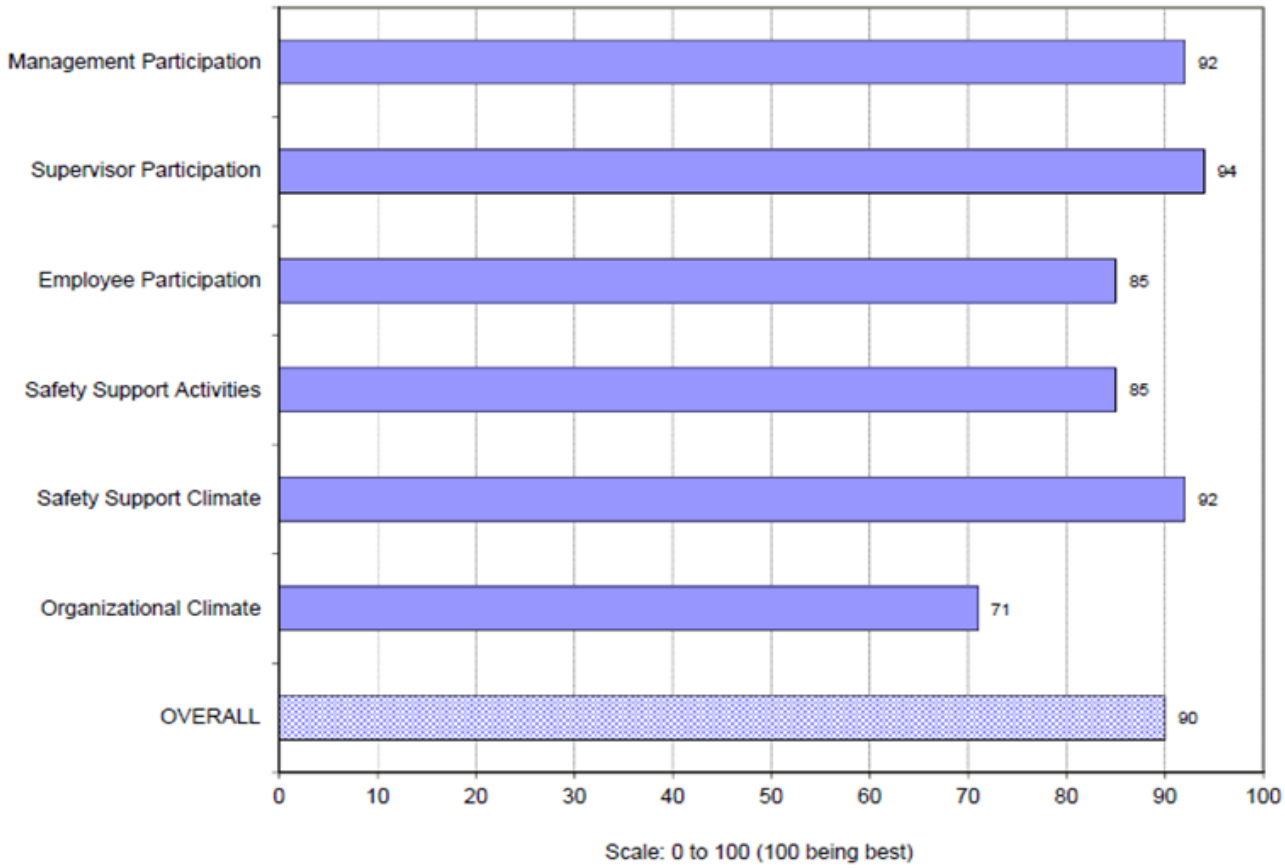


TABLE 1

Percentile Scores, Percent Distribution of Responses, and Average Response Scores

2016 SAFETY BAROMETER SURVEY RESULTS
NISOURCE – COLUMBIA GAS OF VIRGINIA

Category[1]		Statement Number and Component	Percentile Score[2]	Percent Distribution of Responses					Average Response Score[3]
				Strongly Positive	Positive	Neutral	Negative	Strongly Negative	
SP	44	Supervisors investigating work related injuries/illnesses	**97**	35.0%	47.1%	16.7%	1.3%	0.0%	1.157
EP	11	Employees believing that their actions can protect coworkers	**95**	63.1%	33.3%	3.3%	0.3%	0.0%	1.592
SP	19	Supervisors enforcing safe job procedures	**95**	51.5%	37.8%	9.1%	1.6%	0.0%	1.391
SP	5	Supervisors maintaining a high safety performance standard	**95**	52.6%	35.0%	10.1%	2.3%	0.0%	1.379
MP	49	Management setting annual safety goals	**94**	37.8%	46.3%	11.7%	3.3%	1.0%	1.166
EP	46	Employees using necessary personal protective equipment	**93**	37.8%	45.9%	9.1%	6.2%	1.0%	1.134
MP	7	Management stressing the importance of safety in communications	**93**	48.2%	29.2%	8.5%	9.2%	4.9%	1.066
SSC	23	Safety standard level relative to production standard level	**93**	28.8%	38.2%	16.3%	9.8%	6.9%	0.722
SP	12	Supervisors behaving in accord with safe job procedures	**92**	58.2%	29.1%	7.8%	2.9%	2.0%	1.386
SP	24	Supervisors understanding employees' job safety problems	**92**	34.9%	49.5%	11.4%	3.3%	1.0%	1.140
SP	32	Supervisors integrating safety into the production process	**92**	34.5%	48.5%	12.4%	3.3%	1.3%	1.117
EP	1	Employees identifying and eliminating hazards	**91**	52.1%	41.7%	4.9%	1.0%	0.3%	1.443
SSC	48	Belief that management insists supervisors think about safety	**91**	38.8%	47.6%	11.7%	1.3%	0.7%	1.225
SSC	17	Belief that management does more than law requires	**91**	38.1%	35.5%	10.1%	7.5%	8.8%	0.866
SSC	39	Perception that medical resources are sufficient	**90**	23.6%	50.5%	20.7%	3.9%	1.3%	0.911
SSC	45	Perception that good environmental conditions are kept	**90**	21.2%	53.4%	17.6%	5.9%	2.0%	0.860
EP	18	Belief that employees understand safety and health regulations	**89**	46.6%	45.6%	5.5%	2.0%	0.3%	1.362

TABLE 1 (Cont'd)

Percentile Scores, Percent Distribution of Responses, and Average Response Scores

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Category[1]		Statement Number and Component	Percentile Score[2]	Percent Distribution of Responses					Average Response Score[3]
				Strongly Positive	Positive	Neutral	Negative	Strongly Negative	
SSC	10	Belief that management shows it cares for employee safety	**89**	47.7%	40.5%	7.5%	2.0%	2.3%	1.294
EP	20	Employees using standardized precautions for hazardous materials	**89**	34.2%	46.9%	17.6%	1.0%	0.3%	1.137
OC	2	Frequency of employee/management interactions	**89**	39.7%	40.7%	12.4%	5.9%	1.3%	1.117
SSC	36	Belief that hazards not fixed right away will still be addressed	**89**	25.6%	45.2%	14.8%	10.5%	3.9%	0.780
MP	40	Management including safety in job promotion reviews	**89**	33.6%	26.4%	26.7%	7.2%	6.2%	0.739
SSA	26	Presence of safety training in new employee orientation	**88**	52.1%	40.1%	7.8%	0.0%	0.0%	1.443
MP	31	Management setting a positive safety example	**88**	31.7%	46.4%	13.7%	6.2%	2.0%	0.997
SP	28	Supervisors acting on employee safety suggestions	**87**	30.8%	40.7%	17.7%	9.8%	1.0%	0.905
SSA	33	Quality of preventive maintenance system operation	**87**	19.6%	43.5%	20.9%	9.8%	6.2%	0.605
SSC	27	Belief that management is sincere in safety efforts	**86**	45.6%	40.7%	9.4%	3.3%	1.0%	1.267
SSA	15	Thoroughness of near miss accident/incident investigation	**86**	36.5%	37.1%	18.2%	5.5%	2.6%	0.993
SSA	6	Frequency of detailed and regularly scheduled inspections	**86**	26.1%	51.3%	17.3%	4.2%	1.0%	0.974
SSA	13	Presence of employees well trained in emergency practices	**86**	28.7%	46.3%	16.6%	5.5%	2.9%	0.922
SP	38	Supervisors providing helpful safety training	**83**	28.8%	46.1%	18.6%	4.6%	2.0%	0.951
SSC	3	Priority of safety issues relative to production	**83**	41.8%	33.0%	8.2%	10.8%	6.2%	0.935
MP	14	Management publishing a policy on the value of employee safety	**82**	30.7%	50.7%	13.7%	4.2%	0.7%	1.065
SSC	35	Perception that the safety coordinator has high status	**82**	20.2%	45.0%	24.4%	8.8%	1.6%	0.733

TABLE 1 (Cont'd)

Percentile Scores, Percent Distribution of Responses, and Average Response Scores

2016 SAFETY BAROMETER SURVEY RESULTS
NISOURCE – COLUMBIA GAS OF VIRGINIA

Category[1]		Statement Number and Component	Percentile Score[2]	Percent Distribution of Responses					Average Response Score[3]
				Strongly Positive	Positive	Neutral	Negative	Strongly Negative	
MP	34	Management participating in safety activities on a regular basis	**80**	26.5%	45.1%	16.7%	7.5%	4.2%	0.820
EP	50	Employees taking part in the development of safety requirements	**79**	17.9%	41.7%	18.9%	15.0%	6.5%	0.495
SSA	8	Frequency of safety meeting occurrence	**78**	30.0%	40.7%	15.3%	10.4%	3.6%	0.831
MP	21	Management providing adequate safety staff	**78**	28.0%	42.7%	17.3%	8.1%	3.9%	0.827
OC	42	Stability of workforce	**76**	27.4%	48.5%	10.4%	10.1%	3.6%	0.860
SSA	30	Effectiveness of safety committee in improving safety conditions	**76**	21.6%	50.2%	19.3%	7.2%	1.6%	0.830
SSA	29	Occurrence of emergency response procedures testing	**73**	22.9%	37.6%	24.5%	11.4%	3.6%	0.647
EP	4	Employees being involved in safety and health practices	**72**	18.6%	46.1%	22.9%	9.5%	2.9%	0.680
OC	16	Condition of employee morale	**72**	24.4%	30.0%	16.9%	15.3%	13.4%	0.368
SSA	22	Effectiveness of award programs in promoting safe behavior	**65**	15.6%	30.3%	24.8%	19.5%	9.8%	0.225
SP	43	Supervisors reducing employees' fear of reporting safety problems	**60**	26.4%	40.1%	17.3%	11.7%	4.6%	0.720
EP	37	Employees take part when accident or incident investigations occur	**57**	20.6%	33.0%	24.8%	15.7%	5.9%	0.467
OC	47	Significance of job stress for employees	**57**	10.5%	23.5%	20.6%	26.1%	19.3%	-0.203
OC	9	Condition of departmental teamwork	**45**	16.9%	36.5%	20.5%	15.6%	10.4%	0.339
EP	25	Employees following lockout/tagout procedures	**35**	19.1%	38.8%	33.2%	6.9%	2.0%	0.661
SSA	41	Availability of safety coordinator to provide assistance	**30**	17.9%	37.1%	22.1%	15.0%	7.8%	0.423

[1] MP=Management Participation, SP=Supervisor Participation, EP=Employee Participation, SSA=Safety Support Activities, SSC=Safety Support Climate, OC=Organizational Climate.

[2] A percentile score expresses the percentage of organizations in the NSC Database with lower average response scores. The percentile score range is from 0 to 100.

[3] Calculated by assigning a value of +2 for a strongly positive response; +1 for a positive response; 0 for a neutral response; -1 for a negative response; and -2 for a strongly negative response. (See Appendix C for more information regarding methods of analysis.)

CGV Culture Survey Results

Natural Gas Industry Specific Questions

TABLE 1A

Percent Distribution of Responses and Average Response Scores for Customized Items (Q52-Q63)

2016 SAFETY BAROMETER SURVEY RESULTS
NISOURCE – COLUMBIA GAS OF VIRGINIA

Category[1]	Statement Number and Component	Percent Distribution of Responses					Average Response Score[2]
		Strongly Positive	Positive	Neutral	Negative	Strongly Negative	
CUS	63 Company encourages employees to report pipeline safety issues	47.9%	46.4%	5.0%	0.7%	0.0%	1.414
CUS	52 Employees aware of safety risks when ignoring pipeline safety procedures	50.7%	42.1%	4.0%	2.9%	0.4%	1.399
CUS	60 Employees stop work if pipeline safety is compromised	41.4%	47.5%	8.6%	2.2%	0.4%	1.273
CUS	57 Supervisors frequently share information regarding pipeline safety issues	38.0%	47.0%	11.1%	3.2%	0.7%	1.183
CUS	53 Employees take shortcuts when following pipeline safety procedures	37.8%	45.7%	9.7%	5.0%	1.8%	1.126
CUS	56 Most employees review procedures when they have question about pipeline work task	27.7%	54.7%	14.4%	3.2%	0.0%	1.068
CUS	62 Company provides effective pipeline safety training	33.5%	48.2%	11.2%	5.0%	2.2%	1.058
CUS	54 Management addresses pipeline safety concerns in timely manner	33.6%	44.4%	16.6%	3.2%	2.2%	1.040
CUS	55 Employees reluctant to report pipeline safety violation	22.0%	46.2%	18.8%	11.2%	1.8%	0.755
CUS	61 Most employees rarely review pipeline safety procedures before job/task	22.7%	41.5%	18.8%	13.7%	3.2%	0.668
CUS	58 Procedures written in understandable manner	20.4%	45.9%	14.7%	14.3%	4.7%	0.631
CUS	59 Most employees report pipeline safety near misses	15.8%	46.8%	20.5%	13.3%	3.6%	0.579

[1] CUS=Customized Item.

[2] Calculated by assigning a value of +2 for a strongly positive response; +1 for a positive response; 0 for a neutral response; -1 for a negative response; and -2 for a strongly negative response. (See Appendix C for more information regarding methods of analysis.)

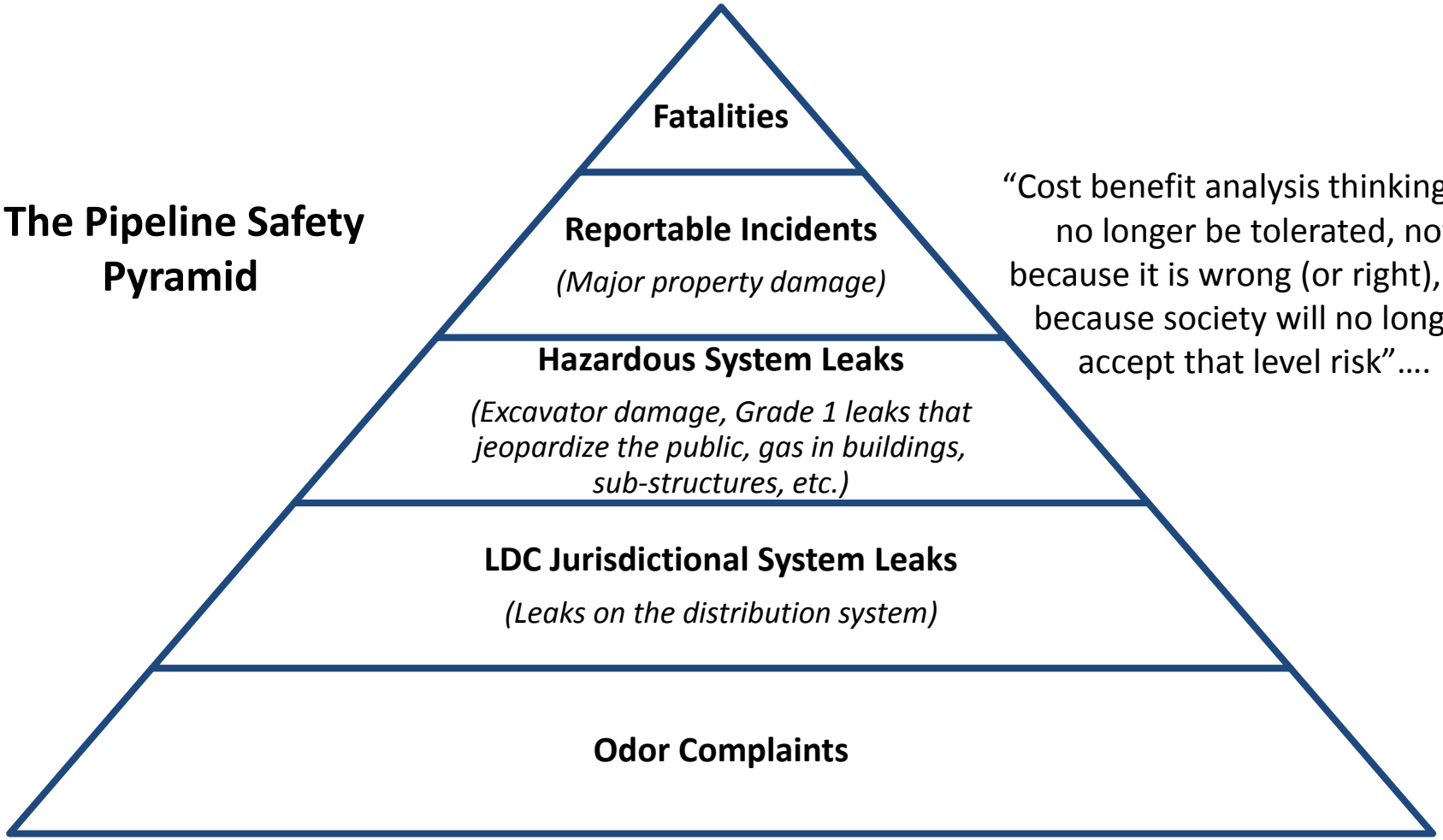
CGV Culture Survey Results

Do, Plan, Check, Act

- **Culture Survey – Next Steps**
  - Review the data with the NSC Survey team. Ask for next step recommendations.
  - Get benchmarking data from NSC on overall survey results across all industries, and any that are specific to the utility industry.
  - Once we understand the data thoroughly, develop an action plan to address the areas identified for improvement.
  - Review with internal and external stakeholders, implement the plan.
  - When Actions Plans are mature, re-assess and adjust as necessary.

"Our Business is no longer about simple compliance with regulations, it is now about operating the system safely, without major incidents."

The Pipeline Safety Pyramid



"Cost benefit analysis thinking will no longer be tolerated, not because it is wrong (or right), but because society will no longer accept that level risk"….

How? A strong Pipeline Safety Culture, with a clear strategy, Procedures and Processes (e.g. DIMP, TIMP, Operating Procedures, etc.), that relentlessly focus on operational rigor and execution, and that individuals at all levels are held to strict accountability.

QUESTIONS OR COMMENTS